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ABSTRACT

This paper presents proven strategies and benefits of integrating technology into the language-arts curriculum and instruction. Benefits include creating a risk-free learning environment; increasing student empowerment; providing the opportunity for students to practice skills in meaningful contexts; and increasing interest in reading and writing. Simple graphics and drawing programs often can be used to introduce students to technology. Engaging software allows students to be creative, productive, and successful with a minimum of concern about the intricacies of the computer system. Learning activities can include group illustration of a fairy tale; slide show book reports; students writing and illustrating their own books and poetry; and the production of individual or class newsletters. (Contains 20 references.) (AEF)

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Paper

Whole-Language Strategies for Integrating Technology into Language Arts

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Abstract

Learner-based software has tremendous potential to support a whole-language approach to instruction. These include creating risk-free learning environments where

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students actively take responsibility for their learning. Using technology can result in student empowerment and can provide students with opportunities to apply skills in meaningful ways. Strategies are presented which were implemented with elementary students to produce the dramatic results that research clearly points to.

Introduction

Literacy is a key factor for being accepted into society. However, many students around the world live in homes where, for a variety of reasons, literacy is not supported. Consequently, children face greater challenges to acquire literacy skills and teachers face greater challenges to provide them (Hochella, 1994). Rickelman and Henk (1990) asked what reading teachers can do to ensure that their students have needed competencies to succeed in the 21st century. To prepare students, they strongly recommended that teachers educate children to be literate and technically competent. How can this be done?

To increase literacy levels, many teachers have created learning situations that reflect the whole-language approach to instruction as described by Goodman (1992).

> The teacher invites learners in a variety of ways to participate in relevant and appropriate learning experiences. It does not mean that the teacher has predetermined everything that will happen; in fact, the teacher often initiates long term arrangements or structures which will lead to pupils taking as much responsibility as possible for their own learning and their own classroom. (p. 359)

Recently, language-arts teachers have discovered that learner-based software has tremendous potential to support a whole-language approach to curriculum and instruction. Learner-based software encourages students to focus on process rather than product and shifts the locus of control to the student (Bull and Cochran, 1991). This creates a three-way interaction between the teacher, computer, and student, and changes students' perspectives about the learning process. These interactions increase students' self-esteem, permit them to actively advance personal literacy levels, and promote the types of learning experiences described by Goodman above.

This article offers proven strategies to integrate technology into the language-arts curriculum and instruction and the benefits for doing so. All strategies were developed and implemented on Macintosh computers, but will also work on other platforms.

Benefits for Integrating Technology into Language-Arts Instruction

Creating a Risk-Free Learning Environment

There are many benefits of integrating technology into language-arts instruction using a learner-based approach. The first focuses on creating risk-free learning environments where students are immersed in textual experiences and are free to experiment with language in creative ways. In such environments, instruction is based on individual students' strengths and weaknesses. Students are encouraged to think and act on their own: to collaborate, make choices, and test predictions. Students are engaged in activities that present complex problems with multiple solutions (David, 1991), see results based on their own strategies for learning, and enjoy successful school experiences (Wang & Palincsar, 1989).

Increasing Student Empowerment

The use of technology in a learner-based classroom increases student empowerment by providing them with opportunities to develop confidence and become aware of their

own expertise. Students are encouraged to shape and develop their own learning tasks by taking risks and collaborating on projects. In studies of secondary students who were using computers to complete writing assignments, Fisher (1989) found that student empowerment increased when activities required problem solving and other higher-order cognitive behaviors. In a two-year study of secondary students who were using computers for writing projects, Tierney (1989) noted, "When using technology, students were more actively involved in designing and building curriculum projects and hence more responsible for constructing their own knowledge" (p. 14).

Practicing Skills in Meaningful Contexts

The use of technology also provides students with opportunities to apply and practice skills in meaningful ways. Becker (1992) noted that if the use of computers was woven integrally into patterns of learning and instruction, the curriculum was given meaning. Other researchers (Graves, 1986; Atwell, 1987; Hansen, 1987; Calkins, 1991) have reported that students read and write with greater depth and accuracy when real audiences are involved. Riel (1986) found that many times students were asked to write without concern for purpose or audience and that writing improved when students understood their purpose for writing.

Cohen and Riel (1989) found that when writing was presented in this manner, it was not viewed as an act of communication, but rather as a demonstration of skills. They reported that when writing to real audiences, "students paid more attention to the informational content and clarity of their writing" (p. 159). Harris (in press) found that when writers felt a sense of connection to their audience, their focus became more personal and the length of compositions increased.

Hiebert's (1989) findings indicated that compositions written by third-graders on computers seemed to be more focused and elaborate. "Stories had more complicated plots and included more dialogue, suggesting that students tended to take more risks when writing with computers" (p. 13). Perhaps Hansen (1987) stated it best, "Regardless of the format, children can see benefits from their written work when it is no longer only an assignment" (p. 139).

Increasing Interest in Reading and Writing

Informal observations of classrooms in Louisiana (Stuhlmann, Taylor & LaHaye, 1995) suggest that students' attitudes toward reading and writing as well as their performance in these areas improved beyond grade level expectations when computers were a part of the language-arts curriculum. These findings are supported by Newman (1989) who reported improvement in attitudes and performance of middle school students toward writing and language development when they corresponded with cohorts through a "computer pals" project.

> These students self-esteem has improved considerably. Other students in the school now often ask them what they're writing about or about the messages they've received. The responses from their computer-pals makes them feel competent. (Newman, 1989, p. 795)

Strategies for Integrating Technology into Language Arts

Simple graphics and drawing programs often can be used to introduce students to technology. Engaging software, such as *Kid Pix 2*, allows students to be creative, productive, and successful with a minimum of concern about the intricacies of the computer system.

One good starting activity involves using the Color Me option of *Kid Pix 2* to present students with pictures to color or "fill in" using paint tools. The students learn to manipulate the mouse and work with simple graphical interfaces. *Kid Pix 2* offers a variety of colors and patterns so that students can express their individuality. The friendly software and colorful results are so engaging that even the most reluctant student is immediately "hooked" on technology and ready to tackle bigger challenges!

Once students have colored the drawings, they then use the text options to title their creations and given themselves credit as artists. They can also insert special graphics stamps of objects into the picture to enhance their vision of the theme of the picture.

Using elementary drawing and painting tools is an excellent way to get students started out with technology. Similar tools are embedded into many software programs. Students will easily recognize these tools and readily use similar tools through these activities as they encounter and explore new software. Through this activity, students learn both technology skills and language skills and acquire confidence to move onto greater challenges.

Mother Goose Illustrations

Many software packages now include options for producing slide show presentations. Students use graphics and drawing packages and text to express meaning on slides. These slides are then organized into a presentation which often may include student-produced sound effects and colorful transitions between slides.

Kid Pix 2 has an inventive slide show component. The slide show is first shown as a series of moving vans. The back of the truck holds a picture. Buttons on the base of the truck allow students to select a picture, add a sound effect, and choose a transition.

One activity to get a class involved in a literary production is to have a group exercise to illustrate a favorite story or fairy tale. In one case, students were grouped into pairs to produce slides to illustrate the story of the famous egg, Humpty Dumpty. Each group was assigned a particular line, such as "Humpty Dumpty had a great fall" or "All the king's horses," to illustrate. Students were introduced to the drawing tools such as rectangles, boxes, lines, and fill tools in the software. The also knew how to use colors and graphic stamps from previous activities. Each group was given only a short time (15 minutes or less) to create their slide. The teacher created the slide show, first saving each picture to the hard disk and then dragging a copy to a floppy disk. Pictures were given names to represent the action on the slide such as Great Fall, or King's Men.

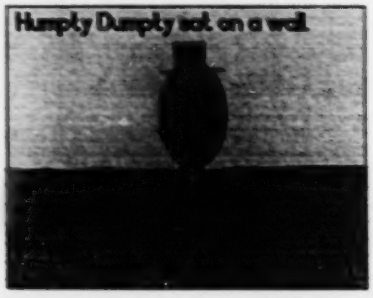

Figure 1: Humpty Dumpty Slide Show

Once all of the slides were collected, the teacher went to a central computer with a display. The students then had a part in assembling the show. The first truck was activated, and students chose the correct picture for the slide from the menu of items on the floppy disk. As the picture was selected, the group that designed the slide was

offered the opportunity to come to the front and record a sound effect. Often, they enlisted others for this or involved the whole class. The slide designers also selected the transition to the next slide.

The class looked on with great excitement as the icon was selected to play the show. At the end, there was thunderous applause and a group of students with great pride in themselves and what they were able to accomplish.

This activity can be used in a variety of contexts, including depicting famous events in history or illustrating special events. For instance, groups could produce slide shows about celebrations in the area, including a Mardi Gras parade complete with floats, Black History Month, St. Patrick's Day, or "What I am Thankful For" (for Thanksgiving Day).

Slide Show Book Reports

Once students have mastered drawing and expression using graphics and text, they can then develop more involved personal projects that illustrate synthesis of learning and language. An excellent project for elementary language arts is the production of slide show book reports.

Students used slide show software to capture the essence of books that they had read. Students were challenged to produce shows of 5–10 slides that told the story or theme of their books. Using software such as *Kid Pix 2*, they included sounds or read portions of their text for emphasis. They also used the special "Wacky TV" movies included in *Kid Pix 2* within their slides for animated effects.

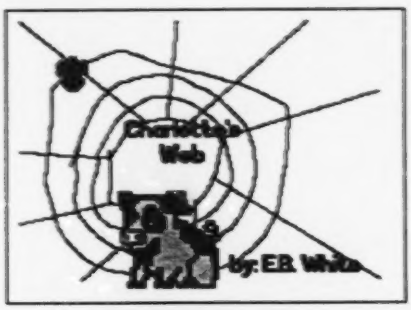

Figure 2: *Charlotte's Web* Slide Show
By Kyle, Grade 4

This activity challenges students to use higher cognitive skills to encapsulate their thoughts and organize them into a presentable format. They must also then consider the complexities of representing the concepts using the computer.

This was an excellent time to introduce students to using special peripheral devices such as scanners and QuickTake cameras. Students scanned in images, often characters or animals found in their books, and used these scanned images in their shows.

In the classes where this strategy was used, slide show book reports added a new dimension to reading. Students became excited about new books by seeing the shows that others produced. They were able to convey their thoughts in ways that were far more appealing than a pencil and paper report, and far more rewarding.

Authors in Action

There are several learner-based programs on the market designed to strengthen and develop writing skills. For example, *Easy Books* is a program designed for students to

write and illustrate their own books. Students illustrate their books using the stamp tool to choose from those pictures housed in the program or have the option of incorporating pictures from other software programs into their stories.

A fifth-grade class of at-risk students, many of whom had never even seen a computer before, used this program. At first, the students were frustrated by their lack of typing skills, but before long, many students were well on their way to writing the great American novel. Like great novelists, students wrote from personal experiences. Fred, age 10, wrote a 54 page book entitled, *What I Think Mrs. Brumfield (the teacher) is Going to Tell my Mother and Father*.

Students then wrote their autobiographies, and the QuickTake camera was used to digitize their pictures into their books for pages entitled "About the Author." This created a sense of ownership and increased the students' perceptions of themselves as writers.

Poetry Alive!

The mere mention of the word "poetry" often produces groans from elementary students. Fourth-grade students were asked to write a poem called a "Wingspark." The poem supposedly was developed by an elementary class at Wingspark Elementary School. A Wingspark has five lines and follows this format:

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I dreamed
I was (a noun)
Where
Describe an action
How
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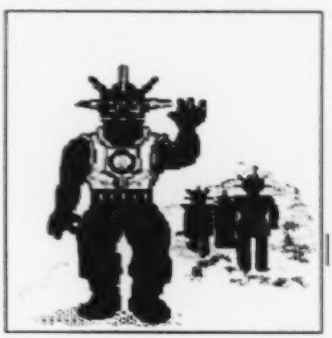
Through the use of *The Writing Center*, a program designed to easily incorporate text and graphics, students were able to use their imaginations to create some very original poems as illustrated in the example below.



The Alien
By Megan. Grade 4

I dreamed
I was an alien
In Outer space
Driving a spaceship

Wrecklessly!

Figure 3. Alien Wingspark

The format of the Wingsparks and the ease of incorporating graphics with text made this writing assignment interesting and fun. Students were delighted with their poems and thoroughly enjoyed using computers to compose them.

Onward and Upward

Several strategies have been presented for integrating technology into language-arts instruction. The strategies are designed for learners to be as successful as they can be, but also to allow for great diversity. The activities often can be used with students working independently or in groups. They are designed so that each student can achieve some degree of success and gain an appreciation for his/her role in the product that was produced.

There are many other types of language-arts software packages that teachers are using successfully. One particularly effective type of package emerging at present is story starter software. These are used to provide ideas, pictures, or thoughts for stories. Often they contain colorful graphics to use to illustrate stories.

Another activity is the production of class or individual newsletters. This can be done with specific publishing software, such as *PageMaker*, for the more advanced students. Students in the classes in Louisiana created excellent newsletters using *The Writing Center*. Others use integrated packages such as *ClarisWorks* for this purpose. Teachers just starting out with newsletters can have enormous success sticking with standard packages which facilitate easy integration of graphics and text rather than investing in specialized publishing packages which may receive limited use and stretch precious software budgets.

For most of the strategies, some specific software was mentioned. All of the activities involve common types software that can be found under many names. Thus, teachers searching for software to use for specific tasks need to be concerned with the function that it will serve rather than specific titles. Careful evaluation and consultation with other teachers who are also using technology will help educators select that software that is best suited for their particular situations.

The activities described in this paper are fundamentally sound for learners of all ages. Teachers will be able to determine when students are ready to move onto more sophisticated multimedia and hypermedia applications or more involved exploration of telecommunications resources.

The real message is that language-arts teachers now have an abundance of excellent learner-centered software that they can use within the language-arts curriculum. The challenge now is to develop, produce, and disseminate models of practice that are suitable for diverse student populations and cultures which are effective, practical, and stimulating for the learners of tomorrow.

Conclusions

Research and practice have both shown that learning is enhanced when children find it meaningful and are given an active role. In the language-arts area, students are particularly motivated when they are communicating or producing for a real audience rather than for a grade. Teachers can use a variety of technology tools to develop a whole-language approach to learning that meets all of these needs.

In the school of the future, technology and language arts will be integrated together. Students rarely receive instruction in technology for technology sake, but rather in the context of the needs for the particular curricular application that they are undertaking. The result will be students who are positive about both language arts and technology and who have the fundamental skills in both that they will need for future education and lifelong learning.

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